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A NEW SPECIES OF RED-EYED TREEFROG OF THE *HYLA URANOCHROA* GROUP (ANURA: HYLIDAE) FROM NORTHERN HONDURAS

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Abstract.—A new species of the *Hyla uranochroa* group is described from the Cordillera de Nombre de Dios, Departamento de Atlántida, Honduras. Relationships to other members of the group are discussed.

Until recently, the *Hyla uranochroa* group was considered to be confined to lower Central America (Duellman 1970). However, in 1982 and 1983 we discovered specimens representing a new species of this group from western Honduras which we subsequently described as *Hyla soralia* Wilson and McCranie, 1985. In August 1982 and 1984 we collected additional material representing another new species in this group from the Cordillera de Nombre de Dios in the Honduran department of Atlántida. The type-locality of this new species is alongside the Quebrada de Oro, a stream flowing out of the cordillera into the Río Viejo, in turn a tributary of the Río Cangrejal which flows into the Caribbean Sea at La Ceiba.

Hyla salvavida, new species
Fig. 1

Holotype.—University of Kansas Museum of Natural History (KU) 200999, adult male, from Quebrada de Oro (15°38′N, 86°47′W), elevation 880 m, tributary of Río Viejo, south slope of Cerro Búfalo, Cordillera de Nombre de Dios, Departamento de Atlántida, Honduras, collected 16 Aug 1984 by James R. McCranie, Kenneth L. Williams, and Larry David Wilson. Original number LDW 6501.

Paratopotypes.—KU 201000-008, 201010-013, adult males, and KU 201009, adult female, 16 Aug 1982 and 16–18 Aug 1984, elevation and collectors as for holotype.

Diagnosis.—A member of the *Hyla uranochroa* group distinguished from the other members by the following combination of characters: dorsum uniform dark leaf green; venter pale yellow; pale lip stripe thin, diffuse, expanded below eye; lateral pale stripe poorly developed, consisting of broken series of flecks; snout–vent length (SVL) 25.2–27.5 mm in males, 34.3 in single female; tympanum diameter 38.7–43.8% of eye diameter in males; snout rounded in lateral profile; plantar surfaces of feet pigmented; anterior arm of squamosal extending one-third of distance to maxilla; quadratojugal present only as spur posteriorly.

Description of holotype.—Adult male with SVL of 26.2 mm; tibia length 14.2 mm; tibia length/SVL 0.542; hand length 7.6 mm; hand length/SVL 0.290; foot length 11.0 mm; foot length/SVL 0.420; head length 10.0 mm; head length/SVL 0.382; head width 9.7 mm; head width/SVL 0.370; diameter of eye 3.1 mm; diameter of tympanum 1.2 mm; tympanum/eye diameter 0.387. Snout in lateral profile rounded, in dorsal profile rounded; canthus rounded; loreal region slightly concave; lips moderately thick and unflared; nostrils protuberant; internarial distance 2.1 mm; internarial distance/head width 0.216; top of head flat; interorbital distance 3.9 mm; interorbital distance/head width 0.402; width of eyelid

Fig. 1. Female paratopotype (KU 201009) of *Hyla salvavida.*

2.2 mm; eyelid width/head width 0.227; snout length 2.7 mm; snout length/head length 0.270; snout length/eye diameter 0.871. Moderately heavy dermal fold extending from posterior corner of eye above tympanum to point above base of forearm, obscuring upper edge of tympanum; tympanum round, its diameter 1.25 times its distance from eye. Forearm moderately robust, having well-developed dermal fold on wrist; raised dermal fold along outer edge of forearm; pollex slightly enlarged with poorly cornified patch of nuptial excrescences; second finger noticeably shorter than first; subarticular tubercles round, those on third and fourth fingers bifid; discs on fingers moderate in size, that on third finger equal to diameter of tympanum; webbing vestigial between first and second fingers; webbing formula II 1½–3 III 2½–2 IV (sensu Myers and Duellman 1982); heels broadly overlapping when hindlimbs adpressed; tarsal fold moderately developed, extending length of tarsus; inner metatarsal tubercle ovoid, visible from above; subarticular tubercles rounded, conical; length of toes from shortest to longest 1-2-3-5-4; webbing formula I 2–2 II 1–2½ III 1½–3½ IV 2½–1 V; discs of toes distinctly smaller than those of fingers. Anal opening directed posteroventrally at upper level of thighs. Skin of dorsum smooth, that of throat and belly granular, that of ventral surfaces of thighs smooth. Tongue elongately ovoid, barely free behind; prevomerine teeth 4–5, situated on posteromedially-inclined ridges, narrowly separated and between moderately large ovoid choanae; vocal slits large, extending from posterolateral base of tongue to angle of jaws. Vocal sac single, median, and subgular.

In life, the color pattern was as follows: dorsum dark leaf-green; exposed surfaces of limbs same; upper jaw with a thin, diffuse lip stripe that is expanded below eye; outer edge of forearm with series of interrupted pale dashes from elbow to wrist; outer edge of tarsus with thin, diffuse pale stripe; pale anal stripe poorly developed; tubercles below anal opening tipped with white; venter pale yellow; iris blood red.

Variation in the paratopotypes. —The

pertinent data on thirteen males (range followed by mean in parentheses) and one female (separated from the former by a comma) are as follows (all measurements are in millimeters): SVL 25.2–27.5 (26.5), 34.3; tibia length 14.3–15.5 (14.8), 18.6; tibia length/SVL 0.532–0.587 (0.559), 0.542; foot length 10.2–11.5 (10.8), 13.8; foot length/SVL 0.385–0.437 (0.408), 0.402; hand length 6.9–8.0 (7.6), 10.0; hand length/SVL 0.256–0.317 (0.286), 0.292; head length 9.5–10.3 (9.9), 12.3; head length/SVL 0.359–0.398 (0.376), 0.359; head width 9.3–10.1 (9.8), 11.9; head width/SVL 0.358–0.388 (0.369), 0.347; diameter of eye 2.8–3.3 (3.1), 3.5; diameter of tympanum 1.2–1.4 (1.3), 1.3; tympanum/eye diameter 0.387–0.438 (0.409), 0.371; interorbital distance 3.6–4.1 (3.9), 4.7; interorbital distance/head width 0.367–0.418 (0.399), 0.395; width of eyelid 2.1–2.5 (2.3), 3.0; eyelid width/head width 0.208–0.258 (0.235), 0.252; internarial distance 2.0–2.3 (2.2), 2.9; internarial distance/head width 0.198–0.237 (0.224), 0.244; snout length 2.7–3.0 (2.8), 3.3; snout length/head length 0.262–0.303 (0.285), 0.268; snout length/eye diameter 0.871–1.00 (0.928), 0.943.

Variation in color and pattern of the paratopotypes is minimal, with the exceptions of KU 201008 in which the labial stripe is well-developed, complete, and confluent with the relatively well-developed lateral stripe and in the presence of a large cream-colored spot just above the groin in the single female (KU 201009).

Metamorphosing froglets.—On 16 August 1984 we collected two metamorphosing froglets (KU 201015-016) in stages 44 and 45 (Gosner 1960) respectively, at the type-locality. Mensural data on the specimens are as follows: SVL 15.2, 16.6; tail length 14.6, nub only in the latter; tibia length 7.8, 8.3; tibia length/SVL 0.513, 0.500; hand length 4.4, 4.6; hand length/SVL 0.289, 0.277; foot length 5.6, 6.0; foot length/SVL 0.368, 0.361.

Color notes on KU 201015 in life are as follows: dorsum metallic coppery green; lime green on upper eyelid; venter yellow; limbs yellow with greenish-brown patina; enamel yellow spots at elbow, knee, and heel; undersurfaces of feet orangish-red; tail gray stippled with white; pale lip stripe present; iris red.

Tadpole.—A single poorly-preserved tadpole presumed to be of this species (KU 201014) was collected at 1070 m in the Quebrada de Oro. Allocation must be considered tentative at best but the tadpole definitely is of the type found in members of the *Hyla uranochroa* group (Duellman 1970; Wilson and McCranie 1985). Many features are obscured due to the desiccated condition of the specimen but the following features are determinable: mouth ventral, large, and funnel-shaped without lateral folds in the oral disc; oral disc entirely bordered by a row of minute papillae; large conical papillae present within oral disc; beaks relatively small with long pointed serrations; denticle rows ⅔, second upper row narrowly interrupted medially, third lower row noticeably shorter than other rows.

Osteology.—The following descriptive notes are based on a cleared and stained adult male specimen (KU 201017) of *Hyla salvavida*. The features of the skull are in complete agreement with those used by Duellman (1970) in diagnosing the *uranochroa* group (including a large frontoparietal fontanelle possessed by these frogs, Duellman's 1970 illustration of the region as ossified in *H. uranochroa* notwithstanding). Furthermore, the skull of *H. salvavida* has the anterior arm of the squamosal extending about one-third of the distance to the maxilla and the quadratojugal reduced to a spur posteriorly as is the case in *rufioculis* but not *uranochroa* (skull features are unknown for *lythrodes* and *soralia*).

Etymology.—The name *salvavida* is derived from the Spanish, meaning "lifesaver," in appreciation of the "lifesaving qualities" of our Honduran field companion, *La Cerveza Salvavida*.

Natural history notes.—The vegetation at the type-locality may be characterized as of

the Subtropical Wet Forest formation of Holdridge (1967) and is described in more detail by McCranie et al. (in prep.).

All the members of the hypodigm were collected at night on low vegetation one to two meters off the ground alongside a shallow, broad slow-moving small stream and associated pools at a point just before it flows into the Quebrada de Oro. Extensive searches elsewhere in the area over several days in two different years produced no other specimens.

All the males were collected while calling. The call is a cricket-like chirp repeated three or four times.

The single female collected on 16 August 1984 contains eggs about ready to be deposited. The same evening two metamorphosing froglets were found and a tadpole presumed to be of this species was collected on 4 June 1980. These data suggest an extended breeding season.

Relationships.—*Hyla salvavida* is a member of the *uranochroa* group as defined by Duellman (1970). He included two species, *rufioculis* and *uranochroa,* in the group. Myers and Duellman (1982) resurrected *Hyla lythrodes* from the synonymy of *H. rufioculis,* and Wilson and McCranie (1985) described a fourth species, *H. soralia,* from Honduras. *Hyla salvavida* agrees in all features of the *uranochroa* group as detailed by Duellman (1970), Duellman and Campbell (1982), and Wilson and McCranie (1985).

Within this group of five species, *Hyla salvavida* most closely resembles *H. rufioculis.* They share a pale labial stripe expanded below the eye, pigmented plantar surfaces of the feet, similar tympanum/eye ratio, and the same features of osteology and larval denticle morphology. They differ in dorsal color (leaf green in *salvavida,* dull brown to olive green in *rufioculis*), nature of the lateral stripe (broken in *salvavida,* well-developed and complete in *rufioculis*), character of the labial stripe (broken and suffused with green in *salvavida,* well-developed and complete in *rufioculis*), ventral color (pale yellow in *salvavida,* creamy white in *rufioculis*), and snout shape (rounded in lateral profile in *salvavida,* truncate in *rufioculis*).

Wilson and McCranie (1985) discussed the relationships and biogeography of the *uranochroa* group, postulating a dispersal northward of a lower Central American stock across the Nicaraguan depression during a pluvial period which gave rise to *Hyla soralia* in western Honduras and the *H. schmidtorum* group in southern México. *Hyla salvavida* appears to fit in this scenario as an early offshoot of the northward-dispersing stock that still shows major resemblances to the less-derived forms in lower Central America.

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